Polarization Measurement of 100GeV RHIC-pp with CNI $\vec{p}$C Polarimeter

The polarization measurement through elastic ($\vec{p}$,C) reaction plays a crucial role in the polarized proton beam operation of Relativistic Heavy Ion Collider (RHIC). Although the analyzing power reaches maximum around the Coulomb Nuclear Interference (CNI) region ($0.001 < t < 0.01$ (GeV/c)$^2$), it is still small in the order of 4% for the proton energy of 100GeV. Despite the small sensitivity, a few percent statistical accuracy can be achieved within 20 seconds of actual measurement at proton beam intensity of $60\times10^{11}$, because of a large reaction cross section. The polarimeter thus serves realtime feedbacks to an accelerator tuning and experiments. The polarimeter consisted of ultra thin (3.5 μg/cm$^2$) carbon ribbon targets and six silicon strip detectors per a beam line. Each detector is segmented into 12 strips with 2 mm pitches. Independent measurements of total 72 channels will give an idea of systematic limit. In this talk, I will focus on upgrades and improvements of the polarimeter and analysis details for Run05.